IN THE CLAIMS

1. (Currently amended) A method for producing a surface-modified material for a cathode material, comprising the steps of

(i) treating a bulk of material with a solution containing a first solvent and at least one flocculant comprising a soluble polymer so that the flocculant adheres to the bulk;

(ii) subsequently contacting the flocculant-treated bulk of step (i) with a dispersion containing a second solvent and a particulate solid particle(s) to deposit the particulate solid particles on the flocculant-treated bulk ; and

(iii) subsequently treating the resultant of step (ii) with heat at a temperature of more than about 550 °C to create a concentration gradient of one or more dopant or substituent element(s) from the surface to the bulk, and/or core-shell materials with the core and the shell(s) being different distinct phases,

wherein the surface modified material is a cathode material with modified surface layers for Li batteries, Li-ion batteries, Li polymer batteries, and Li-ion polymer batteries, where an original cathode material is coated with fine-particulate solid particles, and

wherein the bulk of material is ~~selected from the group consisting of~~ $LiCoO_2$~~, $LiNiO_2$, $LiNi_xCo_{1-x}O_2$, $LiMn_2O_4$, $LiFePO_4$, and materials derived therefrom by doping or substitution with other elements~~, and

wherein the dispersion of step (ii) is a dispersion solution of TiO_2 or Al_2O_3, and the particulate solid particle(s) is TiO_2 or Al_2O_3.

2. (Canceled).

3. (Previously presented) The method according to claim 1, wherein each of the first solvent and second solvent is independently water, non-aqueous solvents, mixtures of non-aqueous solvents, or mixtures of non-aqueous solvents with water.

4. (Withdrawn) The method according to claim 3, wherein the non-aqueous solvents are polar non-aqueous solvents selected from the group consisting of alcohols, esters, ethers, ketones, sulfoxides, and lactames.

5. (Original) The method according to claim 1, wherein the soluble polymer is selected from the group consisting of water-soluble proteins and polysaccharides, and derivatives thereof.

6. (Withdrawn) The method according to claim 1, wherein the soluble polymer is selected from the group consisting of polyelectrolytes with a positive or negative charge and betaines which simultaneously carry positive and negative charges.

7. (Original) The method according to claim 1, wherein the dispersion of step (ii) contains more than one type of particulate solid particles so that more than one type of particulate solid particles are coated on the bulk.

8. (Original) The method according to claim 1, wherein the step (ii) is repeated twice or more before performing step (iii) and the dispersion of each step (ii) contains the same or different type of particulate solid particles so that one or more type of particulate solid particles are coated on the bulk.

9. (Original) The method according to claim 1, wherein the step (i), (ii) and (iii) are repeated twice or more and the dispersion of each step (ii) contains the same or different type of particulate solid particles so that one or more type of particulate solid particles are coated on the bulk.

10. (Withdrawn) The method according to claim 1, wherein the heat-treatment of the step (iii) results in partial or a full decomposition of the flocculant in the resultant of step (ii).

11. (Withdrawn) The method according to claim 1, wherein the heat-treatment of the step (iii) results in a sintering of the particulate solid particles coagulated on the bulk.

12. (Withdrawn) The method according to claim 1, wherein the heat-treatment of the step (iii) results in a reaction of the different types of particulate solid particles coagulated on the bulk with each other and in the formation of new phases or solid solutions.

13. (Original) The method according to claim 1, wherein the heat-treatment of the step (iii) induces a partial or complete reaction between the bulk and the particulate solid particles coagulated on the bulk with the formation of one or more new phases.

14. (Withdrawn) The method according to claim 1, wherein the heat-treatment of the step (iii) induces a partial or complete reaction between the bulk and the particulate solid particles coagulated on the bulk with the formation of a solid solution.

15. (Withdrawn) The method according to claim 1, wherein the heat-treatment of the step (iii) induces a partial reaction between the bulk and the particulate solid particles coagulated on the bulk with the formation of a solid solution in such a way that a material with a concentration gradient from the surface to the bulk of the element(s) stemming from the particulate solid particles is obtained.

16.-20. (Canceled)

21. (Withdrawn/ Previously presented) The method according to claim 1, wherein the particulate solid particles is selected from precursors yielding oxides, mixed oxides, hydroxides, carbonates and phosphates of Li, Na, K, Rb, Mg, Ca, Sr, Ba, Y, La, Ti, Zr, V, Nb, Cr, Mo, W, Mn, Re, Fe, Ru, Os, Co, Rh, Ir, Ni, Pd, Pt, Cu, Ag, Au, Zn, B, Al, Ga, In, Si, Ge, Sn, Pb, As, Sb, Bi, Se, Te, or rare earth metals by calcinations in the presence of oxygen.

22. (Withdrawn) The method according to claim 21, wherein the particulate solid particles are Li_2O, MgO, CaO, SrO, TiO_2, ZrO_2, ZnO, Al_2O_3, In_2O_3, SnO_2, Y_2O_3, La_2O_3, Li_2TiO_3, $CaTiO_3$, $BaTiO_3$, $BaSO_4$, Li_2CO_3, $LiCoO_2$, $LiNiO_2$, $LiNi_xCo_{1-x}O_2$, or $LiAlO_2$.

23. (Withdrawn/ Previously presented) The method according to claim 1, wherein a deficiency of Li due to evaporation of Li during the heat-treatment of step (iii) is compensated by coating with Li_2O, Li_2CO_3, or with other compounds which act as Li source.

24. (Withdrawn/ Previously presented) The method according to claim 1, wherein a deficiency of Li due to a coating with particulate solid particles which do not contain Li is compensated by coating with Li_2O, Li_2CO_3, or with other compounds which act as Li source.

25. (Withdrawn) The method according to claim 24, wherein the particulate solid particles which do not contain Li are TiO_2, or Al_2O_3.

26. (Withdrawn/ Previously presented) The method according to claim 1, wherein the surface-doped or surface-substituted materials with a concentration gradient of the dopant or substituent from the surface to the bulk are prepared by coating of $LiNiO_2$, $LiCoO_2$, or $LiNi_xCo_{1-x}O_2$ with $LiAlO_2$, which forms a solid solution with $LiNiO_2$, $LiCoO_2$, or $LiNi_xCo_{1-x}O_2$, or by coating of $LiNiO_2$, $LiCoO_2$, or $LiNi_xCo_{1-x}O_2$ with TiO_2 or Al_2O_3 and with Li_2O, Li_2CO_3, or with other compounds which act as Li source.

27. (Withdrawn) The method according to claim 26, wherein the surface-doped or surface-substituted materials are $LiNi_{1-x}Al_xO_2$, $LiCo_{1-x}Al_xO_2$, or $LiNi_{1-x-y}Co_xAl_yO_2$.

28. (Previously presented) The method according to claim 1, wherein the heating at a temperature of more than about 550 °C is for up to about four hours.